ABSTRACT OF THE DISCLOSURE

A system of Quality of Service signaling in an IP cable telephony system includes encrypting Quality of Service signals and sending them, instead of directly from an Internet Protocol Digital Terminal to a Cable Modem Termination System, indirectly via Broadband Telephony Interface serving a telephony device. The Broadband Telephony Interface, which lacks the encryption and decryption keys, includes the encrypted Quality of Service signaling message in a signaling message it transmits to the Cable Modem Termination System when requesting a change in access to network resources. The Cable Modem Termination System attempts to decrypt the Quality of Service signaling message; and it controls access to network resources in accordance with the contents of the Quality of Service signaling message if it is able to decrypt it. This system reduces the number of signaling messages and network resources needed for call processing while providing security against denial-of-service attacks.